TECHNICAL SPECIFICATIONS

WASHINGTON STATE FERRIES

M.V. EVERGREEN STATE DRYDOCKING

CONTRACT NO. 00-6956

TECHNICAL SPECIFICATION

TABLE OF CONTENTS

ITEM **PAGE**

ITEM **PAGE**

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TECHNICAL SPECIFICATION

For the following Technical Specifications, the Contractor is to provide all labor, material and equipment to accomplish each and every Bid Item unless otherwise specified.

The Specification Item sub-titles in brackets are for WSF internal use only, for Life Cycle Cost modeling. Bidders should ignore such bracketed sub-titles.

1. DRYDOCK VESSEL
{MAINTENANCE}

M.V. EVERGREEN STATE Vessel Particulars:

Length: 310'-0", Beam: 73'-0", Draft: 15'-10", Gross Tons: 2,041

A. Provide labor, material and equipment to drydock Vessel for cleaning, painting, inspections, and the work specified herein and any necessary repairs.

B. Block spacing shall be at twelve foot (12') centers. Provide drawing to the WSF Inspector indicating the block positions used.

C. Vessel shall be blocked to expose the block positions used at the previous docking. **Attachment No. 2**, "BLOCK POSITION FORM" showing previous docking position, is provided for reference.

2. TEMPORARY SERVICE
{MAINTENANCE}

A. Install one (1) telephone on board in a location designated by the Vessel Staff Chief Engineer. The telephone is to have one (1) outside line with toll-free access to Seattle and vicinity and, if different, one (1) line for local numbers. The telephone shall have touchtone service if available from the Contractor's telephone system.

B. Provide and maintain electricity, water, safe lighted gangway and trash removal services while vessel is in the Contractor's facility.

C. Provide Safety and Security for the entire Vessel throughout this Contract period until such time as the WSF has accepted redelivery of the Vessel. Every reasonable precaution shall be taken to protect the Vessel from the hazards of fire, flooding, pilferage, malicious damage, and other events including cataclysmic phenomena of nature.

D. Provide and maintain comprehensive and effective fire prevention and fire detection, and fire fighting programs and systems sufficient to ensure the safety and integrity of the Vessel. Provide personnel trained in shipboard fire fighting techniques and also trained to cooperate with and assist local fire fighting organizations. Provide sufficient shore fire lines to ensure an adequate supply of fire fighting water, at sufficient pressure, and maintain an adequate number of tested fire-hoses aboard the Vessel to effectively fight fires at any location in the Vessel.

E. Provide and maintain portable fire extinguishers in sufficient quantity, and of the appropriate type, to combat local fires of any class. Provide sufficient fire watches, including roving watches as may be required, to ensure that fires that may be inadvertently started by welding sparks or heat, electrical malfunction, or spontaneous combustion are detected, reported and promptly extinguished.

3. ZINC RENEWAL {MAINTENANCE}

A. Renew bolt-on zincs at the following locations: Port and Starboard sea chests, forward and aft, total of eight (8) zinc's.

4. RUDDER INSPECTION, NO. 1 AND NO. 2 ENDS {MAINTENANCE}

A. Drain and pressure-test rudders for leaks in the presence of the WSF and USCG Inspectors and the Vessel Staff Chief Engineer **within 8 hours** of drydocking. Test pressure shall be 42" of water with Manometer, or 1.5 PSI on acceptable calibrated pressure gage that has 1.5 PSI at mid scale range. Accepted test is no leaks for one (1) hour. Provide three (3) copies of the test results to the WSF Inspector within **2 hours** after testing. Dispose water in accordance with local, state, and Federal laws and regulations.

B. Take and record clearances of rudder pintle and rudderstock bearings on No. 1 and No. 2 End rudders. Submit three (3) copies of a written report of findings to the WSF Inspector **within 48 hours** after drydocking.

C. Remove interferences as necessary to access the No. 1 and No. 2 rudder stuffing boxes.

D. On No. 1 and No. 2 Rudders remove existing packing, clean packing area and install new Contractors furnished packing. New packing will same type, quantity and size as removed. Provide Vessel Staff Chief Engineer with one (1) extra set if packing.

E. Secure all loose gland studs and double nut the studs after installation and adjusting of new packing.

F. Make up stuffing boxes and reinstall interferences in good order upon completion of all work. Test deck access plate for water leaks.

5. PROPELLER INSPECTION, NO. 1 AND NO. 2 ENDS {MAINTENANCE}

A. Polish the No. 1 and No. 2 End propellers by power disk sanding, using 80 grit or finer abrasive. Thoroughly clean propeller hub and blades for nondestructive testing.

B. Inspect No. 1 and No. 2 End propellers for damage and proper blade track. Conduct a Nondestructive test using a qualified NDT Inspector, for surface cracks on the blades in the presence of the WSF and USCG Inspectors, Vessel Staff Chief Engineer, submit three (3) copies of a written report of findings to the WSF Inspector with in **two (2) days** after drydocking the Vessel.

6. WAUKESHA SEAL INSPECTION, NO. 1 AND NO. 2 ENDS {MAINTENANCE}

A. Remove the rope guards. Drain No. 1 and No. 2 Ends outboard stern seal unit. Dispose of oil in accordance with local, state, and Federal laws and regulations.

B. Take WAUKESHA seal wear-down readings on No. 1 and No. 2 Ends in the presence of the WSF Inspector and Vessel Staff Chief Engineer. Submit three (3) copies of a written report of findings to the WSF Inspector with in **two (2) days** after drydocking the Vessel.

C. Fill the No. 1 and No. 2 outboard WAUKESHA seals with Hyperlube or STP in the presence of the WSF Inspector and the Vessel Staff Chief Engineer.

D. Reinstall rope guards upon completion of all related work.

E. Prepare the end of the stern tube and the bronze bearing housing to an SSPC-SP3, Power Tool Cleaning. Paint the stern tube and the end of the bearing housing with two (2) coats of INTERNATIONAL Intertuf 262 Series epoxy, Red, to a minimum of 5 mils (DFT) each coat. May be accomplished during Hull Painting Item.

F. Prepare the rope guards to a SSPC-SP 6, Commercial Blast Cleaning in conjunction with the rest of the hull and coat with the same paint system. Install two (2) welded in 6" x 12" zincs under each rope guard. The zincs are to be sawed in half and two (2) halves installed in each half of each rope guard. Make certain the zincs will not interfere with anything when the rope guards are reinstalled.

7. VOID INSPECTION (MAINTENANCE)

A. Open the eight (8) voids.

B. Provide the services of a Marine Chemist to certify voids "SAFE FOR WORKERS". Provide lighting and ventilation necessary to facilitate USCG inspection and any other work to be performed in the voids.

C. Close the eight (8) voids using new, Contractor furnished, grommets, gaskets washers, and fasteners upon completion of inspections.

PAINTING OF VESSEL AND HULL PRESERVATION

Special Note

(ATTACHMENT NO. 1)

Area Preparation, Surface Preparation, Paint Coatings, and Inspection for Vessel's hull, curtain plates, casing and super structure shall be in accordance with Washington State Ferries Marine Coating Specification 1/03 unless otherwise specified in the following Specifications

8. FRESHWATER WASH OF VESSEL HULL {MAINTENANCE}

A. Within twenty-four (24) hours of drydocking Vessel, provide labor, material and equipment to Low-Pressure Water Clean (LP WC) at 3,000 to 5,000 psi in accordance with SSPC-SP 12/NACE 5. The wand shall be held no more than twelve inches (12") from the surface being washed. Wash the entire Hull, from the top of the guard to the keel, including flat keel, sea chests, strainer plates, propellers, and rudders. The wash shall leave no visible growth or residue after the hull dries from washing. Remove and replace the sea chest strainer plates as necessary. Prior to reinstalling sea chest strainer plates, the Contractor shall conduct an inspection with WSF Inspector and the Staff Chief Engineer.

9. PREPARATION FOR EXTERIOR HULL PAINTING {MAINTENANCE}

NOTE:

Care shall be taken to avoid damage to the CAPAC anodes and reference cell. The anodes are located at Frame 54 port and starboard, both ends, approximately nine feet (9') above the keel. The reference cell is located on the starboard side toward the No. 1 End.

A. Provide covering and protection on propellers, propeller bearings, rudder stock pintle pins and bearings, exposed shafting, CAPAC anodes and reference cells, any removed sea valves, all through-hull penetrations and entrance ways to protect and prevent grit blast material from causing damage or entering the Vessel. All protective coverings and hull penetration blanks shall be inspected by the WSF Inspector and Vessel Staff Chief Engineer prior to grit blasting.

10. ANODE AREA CAPASTIC REPAIR {MAINTENANCE}

NOTE:

For bidding purposes, assume that **25 Square Feet** will require repair. The capastic shall be applied to a minimum thickness of 1/8 inch in the area of the shield out from the faired in area around the anode. The capastic shall be troweled so as to achieve a smooth overall surface.

A. Renew capastic around the CAPAC anodes using 'Capastic' epoxy troweling compound made by ELECTROCATALYTIC, INC.

B. Build up a minimum of 22 mils DFT of epoxy Anti-Corrosion coating over the capastic areas and the secondary dielectric shield areas.

11. GRIT BLAST / PRESSURE WASHING OF THE HULL {MAINTENANCE}

NOTE:

The Contractor shall have the option to UHP-WJ4, Ultrahigh-Pressure Water Jetting only if the hull profile is taken and is within the required profile in **Attachment No. 1** and approved by the WSF Inspector.

NOTE:

For purpose of bidding assume that **3,000 Square Feet** (SF) of hull will require grit blasting to SSPC-SP6, Commercial Blast Cleaning. Upon completion of hull blasting, the Contract will be adjusted upward or downward to account for the actual

scope of blasting authorized by the WSF Inspector.

A. Grit blast areas of abrasion, corrosion or steel repairs on the hull from the top flat surface of the rub rail down to the keel, including flat keel, sea chest, strainer plates and rudders to SSPC-SP 6, Commercial Blast Cleaning.

B. The anti-fouling coating, for at least two inches (2") bordering the blasted area, shall be removed to existing ANTI-CORROSIVE COATINGS and feathered to a smooth surface.

12. PAINTING OF VESSEL HULL, ANTI-CORROSION COATING {MAINTENANCE}

NOTE:

For bidding purposes, assume that **3,000 SF** of the hull will require the ANTI-CORROSIVE COATINGS. The Contract will be adjusted upward or downward, using the square footage determined in Grit Blasting Hull Item.

A. Apply one (1) coat of INTERNATIONAL Intertuf 262 epoxy, Red, to a minimum of 5 mils (DFT) to surface areas prepared in Grit Blasting Hull Item.

B. Apply one (1) coat of INTERNATIONAL Intertuf 262 epoxy, Gray, to a minimum of 5 mils (DFT) of contrasting color to all surfaces painted in paragraph "A" of this Work Item.

13. PAINTING OF VESSEL HULL, BELOW WATERLINE ANTI-FOULING (SPOT COAT) {MAINTENANCE}

NOTE:

For bidding purposes, assume that **2,000 SF** of the hull will require the ANTI-FOULING COATINGS. The Contract will be adjusted upward or downward, using the square footage determined in Grit Blasting Hull Item.

A. Furnish and apply one (1) coat of INTERNATIONAL Interspeed Antifouling, BRA 640 RED, to a minimum of 4 mils (DFT) to all surfaces painted below the waterline in Item 12.

14. PAINTING OF VESSEL HULL, BELOW WATERLINE ANTI-FOULING (FULL COAT).
{MAINTENANCE}

A. Furnish and apply one (1) full coat of INTERNATIONAL Interspeed anti-fouling BRA 642 BLACK, to a minimum of 6 mils (DFT) to all surfaces of hull below the waterline, including the sea chests and sea chest plates.

15. PAINTING OF VESSEL HULL ABOVE THE WATERLINE
{MAINTENANCE}

NOTE:
For bidding purposes assume that **1,000 SF** of the hull above the water line will require TOP COAT painting. The Contract will be adjusted upward or downward using the square footage determined in the work Item "Blasting of the Hull".

A. Furnish and apply one (1) coat of INTERNATIONAL Intercare 755, WSF Medium Green, to a minimum of 2 mils (DFT) to all surfaces painted in Item 12.

16. PAINTING OF VESSEL GUARD
{MAINTENANCE}

A. Furnish and apply one (1) coat of INTERNATIONAL Intertuf 262, Series epoxy, Black, to a minimum of 5 mils (DFT) to the entire guard.

17. DRAFT HULL AND RUDDER MARKINGS
{MAINTENANCE}

A. Furnish and repaint all draft marks and underwater hull markings, using INTERNATIONAL Interlux Y5584, Shark White**.**

18. GAUGE VESSEL STEEL
{MAINTENANCE}

A. Perform an ultrasonic survey of the Vessel's steel plating thickness in the following locations: three (3) girth belts (including the auto deck), 20 shots per belt, total of 60 shots; Plates in the wind and water areas, port and starboard sides, full length – 40 shots per side, total of 80 shots; keel plating, 20 shots; Car Deck and Superstructure areas 50 shots; suspect areas as directed by the WSF Inspector, 50 shots. The survey shall be performed in the presence of the WSF Inspectors. Estimate that 260 shots will be required.

B. The readings shall be taken from the exterior of the hull and deck when the Vessel is in drydock by a qualified NDT Inspector and be completed within seventy-two (72) hours of drydocking, provide preliminary report within twenty-four (24) hours after taking readings. The exact areas to be surveyed in Para. A of this Item will be designated by the WSF Inspector. Provide personnel lift capable of reaching all portions of the hull from the guard down to the keel. The readings may be taken through the paint in areas where paint is smooth enough if the equipment being used is capable of doing so. In areas disturbed by this work, remove and restore paint as necessary, using the proper coating system.

C. Provide the WSF Inspector with three (3) copies of the report in tabular form, identifying the locations of readings by location, original plate thickness, audio gauge reading taken, and percent wastage. Attach a schematic showing the locations shots were taken and thickness found.

(**END**)